An overview of ultra-processed food (UPF) brand regulations in India

Neha Kukreja
Research Scholar
Sydenham Institute of Management Studies, Research and Entrepreneurship Education (SIMSREE)
Mumbai, Maharashtra
neharkukreja@gmail.com

Dr. Pavan. C. Patil
Assistant Professor,
Sydenham Institute of Management Studies, Research and Entrepreneurship Education (SIMSREE)
Mumbai, Maharashtra
drpavancpatil@gmail.com

Abstract **- Ultra-processed foods (UPFs) are commercial preparations that are frequently heavy in fat, sugar, and salt and usually contain additives such as artificial colours, flavours, and preservatives. Non-communicable diseases (NCDs) associated with food have been connected to their consumption. The regulatory environment for UPF brands is changing in India. To address the health effects of consuming UPF, the Food Safety and Standards Authority of India (FSSAI) has taken action. Effective regulation of UPFs is hampered by the absence of a standard definition. In order to effectively detect and regulate UPFs in the Indian market, a study brought attention to this gap and emphasized the necessity of a comprehensive food classification system based on the degree and purpose of industrial processing. In conclusion, even though India has acknowledged the health hazards linked to UPFs and is moving towards regulation, thorough regulatory actions are hampered by the lack of a common definition and classification scheme. Clearly defining UPFs' requirements is essential to creating measures that effectively reduce their negative effects on public health. This study makes a substantial contribution to the subject of ultra-processed food regulations by emphasizing the significance of the numerous controls that are currently in place as well as the necessity of implementing additional measures due to the overall impact on the health of consumers in the Indian market. It also offers information for future research on how laws, consumer behaviour, and knowledge can significantly alter the rate of disease development in India and assist consumers in making their own healthy decisions.**

Keywords **- brands, fats, non-communicable diseases (NCDs), regulations, salt, sugar, ultra processed food, FSSAI**

I. INTRODUCTION

Ultra-processed foods (UPFs) have become a significant part of the modern diet, raising concerns about their health implications. With the rising prevalence of non-communicable diseases (NCDs) such as obesity, diabetes, and cardiovascular disorders, regulatory bodies in India have been working to establish guidelines and frameworks for monitoring and controlling UPFs. This paper provides an overview of the regulatory landscape for UPFs in India, discussing policies, challenges, and future directions. Ultra-processed foods refer to industrial formulations that contain little or no whole foods and are often high in sugar, salt, unhealthy fats, and artificial additives. In India, the rapid urbanization and changing dietary patterns have led to an increase in UPF consumption. Given their association with adverse health outcomes, regulatory mechanisms are crucial for ensuring public health safety. [2] Ultra-processed foods (UPFs) are commercial preparations that are frequently heavy in fat, sugar, and salt and usually contain additives such as artificial colours, flavours, and preservatives. Non-communicable diseases (NCDs) associated with food have been connected to their consumption. [3] The regulatory environment for UPF brands is changing in India. As of right now, Indian regulations lack a common definition or classification scheme for UPFs. [4] Various descriptors are frequently used interchangeably to identify UPFs, including junk foods, fast foods, ready-to-eat foods, quick foods, processed foods, packaged foods, and high-fat-sugar-and-salt (HFSS) foods. To address the health effects of consuming UPF, the Food Safety and Standards Authority of India (FSSAI) has taken action. [2]

Regulatory Framework

1. Food Safety and Standards Authority of India (FSSAI)

India's principal regulatory agency for food safety carries out the Food Safety and Standards Act of 2006, which sets rules for processed foods establishes guidelines for food additives, labelling specifications, and the maximum number of acceptable ingredients.

2. Labelling and Packaging Regulations

The Food Safety and Standards (Packaging and Labeling) Regulations mandate clear disclosure of ingredients, nutritional information, and additives.
The introduction of front-of-pack labeling (FoPL) is under consideration to alert consumers about high levels of sugar, salt, and fat.

3. Restrictions on Marketing and Advertising

Guidelines restricting misleading health claims by food manufacturers.

The Advertising Standards Council of India (ASCI) regulates advertising content to prevent misinformation.

4. Taxation and Fiscal Policies

Discussions around imposing higher taxes on sugar-sweetened beverages and junk food to curb consumption.
The Goods and Services Tax (GST) has categorized certain UPFs under higher tax slabs to discourage their intake.

Among these is the suggestion of front-of-pack labelling (FOPL) rules to alert consumers to the excessive concentrations of important nutrients such as fat, sugar, and salt in packaged foods. These guidelines haven't been fully adopted yet, though, and are still being considered. [6] Regulation of UPFs is hampered by the absence of a standard definition. Although India has acknowledged the health dangers linked with UPFs and is moving towards regulation, comprehensive regulatory efforts are hampered by the lack of a standardized definition and classification system. Clearly defining UPFs' requirements is essential to creating measures that effectively reduce their negative effects on public health. Future studies should focus on how laws, consumer behavior, and education may help consumers make healthier choices and drastically reduce the rate of disease development in India. An unhealthy diet that is low in fruits, vegetables, and whole grains but high in fat, salt, and sugar (HFSS) is one of the main causes of non-communicable diseases (NCDs), such as heart disease, stroke, cancer, diabetes, and chronic lung disease. Currently, 74% of deaths globally are caused by NCDs [5] According to the National Institutes of Health, regularly consuming ultra-processed foods might have detrimental impacts on one's mental health in addition to increasing the risk of death and chronic non-communicable diseases (NCDs). When taken in excess, UPF's high HFSS content can have a disastrous impact on cardiovascular health, highlighting a significant problem that requires attention [8] . India is one of the markets for ultra-processed foods with the quickest rate of growth, according to the World Health Organisation (WHO). If the data is to be accepted, the UPF industry underwent a substantial change, with retail sales increasing between 2011 and 2021 at a compound annual growth rate of around 13.37%. As of right now, Indian regulations lack a common definition or classification scheme for UPFs. Various descriptors are frequently used interchangeably to identify UPFs, including junk foods, fast foods, ready-to-eat foods, quick foods, processed foods, packaged foods, and high-fat-sugar-and-salt (HFSS) foods. [5]

II. PURPOSE OF THE STUDY

The purpose of this study is to analyze the regulatory framework governing ultra-processed food (UPF) brands in India, identifying gaps, challenges, and potential improvements in existing policies. Given the increasing consumption of UPFs and their association with diet-related non-communicable diseases (NCDs), it is crucial to assess how Indian regulations address the classification, labelling, and marketing of these products.

This study aims to:

1. Examine the current regulatory landscape – Reviewing policies set by the Food Safety and Standards Authority of India (FSSAI) and other relevant authorities regarding UPFs.
2. Identify gaps in regulation – Evaluating the absence of a standardized definition for UPFs and inconsistencies in classification systems.
3. Assess the effectiveness of existing measures – Analyzing the implementation of front-of-pack labelling (FOPL), marketing restrictions, and consumer awareness initiatives.
4. Compare with global best practices – Benchmarking Indian regulations against international frameworks to suggest potential improvements.
5. Provide policy recommendations – Suggesting regulatory enhancements to mitigate the public health impact of UPFs while balancing industry interests.

By conducting this study, policymakers, public health experts, and regulatory bodies can gain insights into strengthening India's approach to UPF regulation, ultimately promoting healthier consumer choices and reducing the burden of diet-related diseases.

III. LITERATURE REVIEW

1) Food processing

During the early ages fermentation, pickling (preservation with salt), roasting, smoking, steaming were common methods of food processing. In ancient Greece, Rome and Egypt, salting in particular was used by sailors for preserving food in long voyages. The benefits of processing include long shelf life, preservation, distribution, marketing; protection from microbes however it can significantly lower the nutritive value of foods and the additives may have adverse health effects.

Nourishment processing is the process of changing harvested crops to improve their preservation and provide nourishment for consumers. Food processing is crucial to the population's access to safe, nutrient-dense, and edible foods. It also prolongs food's shelf life and lowers food-borne disease, and can also increase the bioavailability of nutrients or bioactive, as well as their

digestibility. A variety of processes, such as washing, grinding, mixing, cooling, storing, heating, freezing, filtering, fermenting, extracting, extruding, centrifuging, frying, drying, concentrating, pressurizing, irradiating, microwaving, and packing, are referred to as food processing. [1]

2) Food processing in India

By 2025, it is anticipated that the Indian food processing market will have grown from USD 263 billion in 2019–20 to USD 535 billion. India accounted for 2.6% of worldwide exports in 2010 and continued to rise at a compound annual growth rate (CAGR) of 2.6% from 2015 to 2019. [14]

In India, the food industry has shown itself to be a major source of both income and jobs. The government's efforts and 32% of the Indian food market are attributed to it.

Economic trends, population, demographic shifts, climate, and political environment are just a few of the variables that affect food processing. Indian food and grocery stores rank sixth globally and account for 70% of sales. Online meal delivery services are becoming more and more popular, particularly among young people in cities, and are expected to have a bright future. (Reserve Bank of India (RBI) [1]

The need for processed foods has been rising recently in rural and semi-urban areas of India, and the Covid-19 pandemic has increased demand for prepackaged foods, snacks, dairy products, and the ready-to-eat (RTE) market. The six main sub-segments of the Indian food processing business are dairy, meat and seafood, cereals, grains and oilseeds, fruits and vegetables, non-alcoholic drinks, and packaged foods. Over the past five years, the Indian industry has grown by 10%, driven by the packaged foods, dairy, and meat and marine sectors. The need for value-added dairy products, frozen meat, RTE, and snacks is driving the packaged food segment's 16% compound annual growth rate. Tamil Nadu, Karnataka, Gujarat, Uttar Pradesh, and Maharashtra made up more than half of the GVA.[14]

3) Ultra processed food & Consumer demand

The term "nutrition transition" describes the gradual shift in human dietary patterns from traditional to westernized diets. A number of additional changes, including demographic, epidemiological, and economic shifts, are included in the nutrition transition. In wealthy nations, the nutrition transition occurred over a longer period of time than in emerging nations, when the change occurred drastically within a few decades. The consumption of ultra-processed foods is rapidly increasing and is taking the place of freshly prepared, natural, traditional, indigenous, home-cooked, and culturally acceptable food.

4) Impact of Ultra processed food on health

India is undergoing a significant "nutrition transition" Food provides us with nutrients and energy, both of which are necessary for optimal health. Dietary guidelines have been developed for the population to ensure that we prevent diseases and promote health because of the crucial relationship between food, nutrients, and health. Malnutrition is the leading cause of death worldwide, but obesity and overweight are also becoming substantial contributors to morbidity and non-communicable diseases (NCDs). 42 million children and 1.9 billion people worldwide suffer from overweight or obesity. Malnutrition and the growing prevalence of obesity and non-communicable diseases (NCDs) in India are two problems that have a significant financial and health impact.

Non-communicable diseases (NCDs) are known to be caused by a sedentary lifestyle, excessive alcohol consumption, diets high in saturated and trans fat, salt, and sugar (particularly in sweetened beverages), and tobacco use.

5) Regulations for Food and Nutrition Labelling

One of the most significant and straightforward ways to convey information to the consumer is through food labels, which provide information about the product. "Any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of food or food product" is the universally recognized definition of a food label. To encourage the sale of the food, this information—which includes details about its ingredients, quality, and nutritional value—can be placed next to it or included with it.

Any written, printed, or visual content that appears on the label, is attached to the food, or is displayed next to the food—including information intended to encourage its sale or disposal—is considered food labeling. A combination of required (Nutrition Facts Panel (NFP) and ingredients) and optional (symbols and logos, nutritional claims, health claims, and allergen declaration) information on food labels is known as nutrition labeling. [3]

Fssai awareness initiative towards enhanced food safety The FSSAI is responsible for promoting logical decision-making by enhancing the public's comprehension of food labels so that the typical customer can inquire about the creation and execution of health-related policies across India. More knowledge and comprehension will enable the public to

appropriately read these labels, improving their health and lowering their risk of contracting a foodborne illness. This program is pertinent to safety and consumer information globally and helps individuals make decisions about what foods to ingest. [12]

IV. OBJECTIVES OF THE STUDY

1. To understand the changes done by UPF brands
2. To study the developments in UPF regulations in India

V. FORMULATION OF HYPOTHESIS

H0: Corrective actions are not being taken by the regulatory bodies in India for UPF
H1: Corrective actions are being taken by the regulatory bodies in India for UPF

H0: UPF brands are not following the regulations
H2: UPF brands are not following the regulations

VI. THEORETICAL BACKGROUND

The study is grounded in several theoretical frameworks related to food regulation, public health, and consumer behavior:

1. Regulatory Governance Framework – This examines how government agencies like the Food Safety and Standards Authority of India (FSSAI) regulate the food industry, balancing public health priorities with economic interests.
2. Comparative Policy Analysis – By evaluating international food regulatory models, this framework helps assess India's current regulations and suggests improvements based on successful global practices.

By applying these theoretical frameworks, the study seeks to provide a comprehensive analysis of UPF regulations in India and their impact on public health.

VII. PROBLEM STATEMENT

A major public health concern in India is the growing use of ultra-processed foods (UPFs), which is causing obesity, diabetes, and other non-communicable diseases (NCDs) to rise. India lacks a standardised regulatory framework to properly categorise, label, and monitor UPFs despite the health concerns they pose. [2] The Food Safety and Standards Authority of India (FSSAI) oversees current food rules, which mostly concentrate on nutrient composition but fall short in addressing the degree of food processing, which is a crucial component in assessing health concerns. It is challenging to differentiate UPFs from other processed and minimally processed foods due to inconsistent policy enforcement caused by the lack of a specific definition for UPFs in Indian legislation.

Furthermore, front-of-pack labelling (FOPL) programs are still in their infancy, which limits consumer knowledge of the negative health effects of UPF use. India's approach to regulating UPF brands is less strict than international best practices, lacking features like warning labels, marketing limits, and pricing laws that have been effectively applied in other nations. [10] In order to improve public health outcomes, this study aims to identify the gaps in India's UPF laws, evaluate how they affect consumer choices, and investigate potential policy changes. In India's expanding food business, addressing these regulatory flaws is essential to reducing the harmful health impacts of UPFs and guaranteeing educated customer choice.

VIII. RESULT AND DISCUSSION

1. FSSAI directs FBOs to remove claim of 100% Fruit Juices from the label and advertisement of fruit juices.

All Food Business Operators (FBOs) are required by a directive issued by the Food Safety and Standards Authority of India (FSSAI) to immediately remove any claim of "100% fruit juices" from the labels and ads of reconstituted fruit juices. Additionally, all FBOs have been told to use up all of their pre-printed packaging supplies by September 1st, 2024. According to the FSSAI, a number of FBOs have been misrepresenting different kinds of reconstituted fruit juices as 100% fruit juices in their marketing. After careful analysis, FSSAI has determined that the Food Safety and Standards (Advertising and Claims) Regulations, 2018 do not allow for the formulation of a "100%" claim. Such claims are deceptive, especially when the fruit juice is reconstituted with water and fruit pulp or concentrates, or when the key ingredient for which the claim is made is present only in trace amounts and water makes up the majority of the fruit juice. FBOs must adhere to the fruit juice standards outlined in sub-regulation 2.3.6 of the Food Safety and Standards (Food Products Standards & Food Additives) Regulation, 2011 in the clarification issued regarding the marketing and sale of reconstituted fruit juices as "100% fruit juices." According to this rule, the Food Safety and Standards (Labelling and Display) Regulations, 2020 must be followed when labeling items that fall under this standard. In particular, the term "reconstituted" needs to appear in the ingredient list next to the name of the juice that was made from the concentrate. Additionally, the product needs to be labeled as "sweetened juice" if the amount of added nutritional sweeteners exceeds 15 grams per kilogram. (HFW/FSSAI – Directive on Fruit Juices/03rdJune2024)

2. "Har Label Kuch Kahta Hai": FSSAI's Label Awareness Initiative

The Food Safety and Standards Authority of India (FSSAI) launched the "Har Label Kuch Kehta Hai" (Every Label Speaks) campaign as part of its ongoing efforts to increase consumer awareness and promote food safety. It was initiated in the year 2024. This nationwide effort aims to educate people and help them realize that everything they eat contains information on the label. The FSSAI is responsible for promoting logical decision-making by enhancing the public's comprehension of food labels so that the typical customer can inquire about the creation and execution of health-related policies across India. More knowledge and comprehension will enable the public to appropriately read these labels, improving their health and lowering their risk of contracting a foodborne illness. This program is pertinent to safety and consumer information globally and helps individuals make decisions about what foods to ingest. [12]

Monisha Chaudhary (2025), mentions The "Har Label Kuch Kahta Hai" campaign's main goal is to educate people about the foods they are consuming in order to assist them make healthier food choices. It ensures that customers comprehend the meanings of various food symbols by breaking down complex information on food labels into sections that are easy to understand. Additionally, the campaign informs customers of the information that must be included on food packaging. Encouraging correct labeling increases transparency and confidence in food products by holding food manufacturers responsible for the information they offer.

The "Har Label Kuch Kahta Hai" campaign breaks down food labels into several key sections, which are shown below:
1. Finding the dates of manufacture and expiration
2. Comprehending ingredient lists
3. How to interpret nutrition information panels
4. Recognizing food quality indicators (such the FSSAI emblem and vegetarian and non-vegetarian labels)
5. Comprehending statements of allergies
6. Investigating price and net weight data

3. FSSAI directs food businesses to remove A1, A2 milk claims from products

"A1" and "A2" varieties of milk and milk products are misleading, thus food companies, including online retailers, have been ordered to remove such claims from their packaging by the food safety agency FSSAI. According to the Food Safety and Standards Authority of India (FSSAI), these assertions are in violation of the 2006 Food Safety and Standards Act. According to its most recent order, the FSSAI stated that it has investigated the matter and discovered a connection between the structure of the milk protein beta-casein and A1 and A2 differentiation. Nevertheless, this distinction is not acknowledged by the FSSAI"s existing standards. FBOs are directed to eliminate such statements from their merchandise. (Business standard, 2024) The FSSAI a week later have withdrawn this notice for further consultation with stakeholders. One of the main proteins in milk is beta-casein, according to a report released by the National Academy of Agricultural Sciences (NAAS). It is primarily divided into two categories, A1 and A2, and is associated with the cow's genetic composition. A paper titled Milk Proteins and Human Health: A1/A2 Milk Hypothesis, published by the Center - backed National Medical Library, states that caseins and whey proteins make up over 95% of cow milk proteins, with beta-caseins offering "an excellent nutritional balance of amino acids." The differences between the beta-casein A1 and A2 versions at the amino acid level affect how the protein is digested.

According to certain research, A2 milk might be simpler to digest and have distinct health advantages over A1 milk. According to the NIL paper, Indian cattle naturally carry the desirable A2 allele, whereas their European counterparts carry the A1 allele, thanks to the country's breeding policy. Due to these considerations, corporations are pushing "A2" milk and milk products as the healthier choice, which has increased demand for them. [13]

4. Fixed Annual Compliance Date

To streamline the implementation of such regulatory amendments, FSSAI has designated July 1 as the annual enforcement date for changes to the Food Safety and Standards (Labelling and Display) Regulations, 2020. This fixed date provides food business operators with a predictable timeline to adapt to new requirements, ensuring a minimum 180-day compliance window from the notification date. This approach aims to enhance operational efficiency and reduce waste associated with frequent packaging changes. [15]

5. Enhanced Nutritional Labelling Requirements

On July 6, 2024, FSSAI approved amendments mandating that packaged food manufacturers display information regarding total sugar, salt (sodium), and saturated fat content in bold letters and larger font sizes on their labels. This initiative aims to empower consumers with clearer nutritional information, enabling them to make informed dietary decisions. The draft notification for this amendment was released for public feedback and objections. [5]

The recent labelling changes implemented by processed food brands are largely in response to FSSAI's new regulations. However, brands have taken additional steps beyond compliance. Here's a refined breakdown of **specific actions taken by processed food brands in India**:

1. Bold & Bigger Font for Nutritional Information
Leading brands such as Nestlé, Britannia, and ITC have updated their packaging to highlight total sugar, salt (sodium), and saturated fat in bold and larger fonts for better visibility. This is in line with the new FSSAI rule requiring better disclosure of "nutrients of concern.

2. Per Serving Contribution to RDAs (Recommended Dietary Allowance)
Packaged food brands are now displaying the percentage contribution of sugar, fat, and sodium per serving to daily recommended intake. This helps consumers assess how much of their daily allowance they are consuming per serving of a product. ITC Limited has incorporated per serving percentage contributions to RDAs for sugar, saturated fat, and sodium on its product labels, aligning with FSSAI's guidelines. [14]

3. Changes in Marketing & Health Claims
Some brands have removed misleading terms like "health drink" from their labels (e.g., Bournvita and Horlicks) following FSSAI scrutiny. Fruit juice brands (e.g., Tropicana, Real) now clarify the percentage of real fruit content to comply with truthful marketing requirements**.** Following FSSAI's advisories, Dabur has adjusted its labelling to accurately reflect the fruit content in its juice products, ensuring transparency and compliance. [14]

4. Addition of QR Codes & Digital Labelling
Some companies, like ITC and Nestlé, have started adding QR codes on packs that link to detailed nutritional information beyond what can be printed on labels. This helps consumers access more in-depth product details digitally. Even PepsiCo has introduced QR codes on its packaging, allowing consumers to access detailed nutritional information digitally, enhancing transparency. [14]

5. Adjustments in Product Composition

Several brands are reformulating products to reduce sugar and sodium content to avoid potential "high in" warning labels if FSSAI mandates front-of-pack labeling in the future. Examples: PepsiCo is reducing sodium in its Lays chips, and Maggi has reduced salt content in some variants. Hindustan Unilever also has reformulated certain products to reduce sugar and sodium content, proactively addressing potential future labelling requirements and promoting healthier options. [6]

These initiatives by processed food brands demonstrate a commitment to adhering to regulatory standards and promoting public health by providing clearer and more accessible nutritional information.

IX. CONCLUSION

India is progressively working towards regulating ultra-processed foods, but challenges remain in terms of enforcement and public awareness. Strengthening existing policies, improving surveillance, and increasing consumer education will be crucial in mitigating the health risks associated with UPF consumption. A multi-stakeholder approach involving the government, food industry, and public health advocates is essential for effective regulation.

Managerial Implications

Brand managers, legislators, and business executives must consider the ramifications of India's changing ultra-processed food (UPF) regulations. Important managerial lessons learned include the need for firms to invest in product reformulation strategies in order to create healthier alternatives while preserving taste and consumer appeal, given the growing scrutiny surrounding sugar, salt, and fat content. Another would be Labeling Regulations compliance, where firms have to make sure their packaging complies with FSSAI's nutrient disclosure guidelines in order to avoid fines and damage to their reputation. Brands must move toward transparent marketing that informs customers about product ingredients and health impacts as a result of regulatory reforms that ban false health claims. Products that need to be reformulated may need to source other components (natural sweeteners, lower-sodium alternatives, etc.), which calls for new supplier partnerships and supply chain reorganizations.

X. LIMITATIONS

The long-term effects of numerous policies on consumer health and industry compliance are yet unknown because they were either recently enacted or are still being developed. Although the FSSAI requires reformulation and labeling, real compliance may be impacted by state-by-state enforcement disparities. Regional differences in enforcement are not thoroughly examined in the study. Additionally, the study does not thoroughly examine how consumers view and react to these changes; instead, it concentrates mostly on regulatory actions and brand reactions. Industry lobbying has an impact on some regulatory decisions. However, the analysis might not accurately reflect the degree of corporate influence on rules because policymaking is not always transparent.

Scope for further research

Further research can be carried out by comparing India's UPF laws to international standards (such as the UK's sugar tariff and Chile's warning labels) in order to find best practices and any gaps. Investigation can be carried out to examine whether these regulations result in

significant changes in dietary choices and how consumers perceive and react to new labelling requirements. Study can be conducted to analyze how food brands adapt their product portfolios, marketing tactics, and ingredient sourcing in response to stricter regulations. An explorative study can be done to find out how digital tools, such as QR codes and mobile apps, can enhance transparency and consumer access to nutritional information.

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